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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,869	03/22/2004	Joseph Gerard Birmingham	BIRM3002/TJM	1786
<div>23364      7590      08/08/2007</div> <div>BACON &amp; THOMAS, PLLC 625 SLATERS LANE FOURTH FLOOR ALEXANDRIA, VA 22314</div>				
<div>EXAMINER</div> <div>KURTZ, BENJAMIN M</div>				
<div>ART UNIT      PAPER NUMBER</div> <div>1723</div>				
<div>MAIL DATE      DELIVERY MODE</div> <div>08/08/2007      PAPER</div>				

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/805,869

**Applicant(s)**

BIRMINGHAM ET AL.

**Examiner**

Benjamin Kurtz

**Art Unit**

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Stevens US 3 633 751. Regarding claim 1, Stevens teaches a microimpactor system comprising a fluid conduit having a plurality of spaced-apart rows of microimpactors arranged in the fluid conduit substantially transverse to a main direction of flow of fluid through the fluid conduit, wherein each of said rows of microimpactors is formed by a microimpactor sheet (5, 3', 3'') having a plurality of openings in the sheet that define in each such sheet at least one line of two or more microimpactors, wherein each of said rows of microimpactors is in the plane of the sheet (fig. 15 and 18).

Regarding claims 2-6, Stevens further teaches microimpactors in at least two successive rows are offset from each other (fig. 18); microimpactors in successive rows are spaced apart at a distance defined by one or more spacer sheets (2) interposed between the successive sheets of microimpactors (fig. 18); the fluid conduit includes a fluid inlet and a fluid outlet and each of said sheets is a flat sheet (col. 1, lines 39-48); the system further comprises means for moving fluid through the system (col. 2, lines 7-17) which performs the identical function in substantially the same way with substantially the same results as the fans or pumps disclosed herein; and the system

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comprises means for applying an electrical charge to at least one microimpactor sheet (col. 3, lines 9-20) which performs the identical function in substantially the same way with substantially the same results as the electrical circuitry disclosed herein.

2. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Spencer US 3 900 629.

Regarding claim 1, Spencer teaches a microimpactor system comprising a fluid conduit having a plurality of spaced-apart rows of microimpactors arranged in the fluid conduit substantially transverse to a main direction of flow of fluid through the fluid conduit, wherein each of said rows of microimpactors is formed by a microimpactor sheet (12) having a plurality of openings (14) in the sheet that define in each such sheet at least one line of two or more microimpactors, wherein each of said rows of microimpactors is in the plane of the sheet (fig. 1).

Regarding claims 2-5, Spencer further teaches microimpactors in at least two successive rows are offset from each other (fig. 2); microimpactors in successive rows are spaced apart at a distance defined by one or more spacer sheets (12) interposed between the successive sheets of microimpactors (fig. 2); the fluid conduit includes a fluid inlet and a fluid outlet and each of said sheets is a flat sheet (fig. 2); and the system further comprises means for moving fluid through the system (fig. 2, col.1, line 9-11) which performs the identical function in substantially the same way with substantially the same results as the fans or pumps disclosed herein.

***Claim Rejections - 35 USC § 103***

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stevens '751 in view of Carr US 3 999 964. Stevens teaches the microimpactor system of claim 6 but does not teach means upstream from the microimpactor sheets for applying an electrical charge to particles borne in a fluid transported through the fluid conduit. Carr teaches a filter system where the particles in a fluid are charged upstream of the filter device (col. 2, line 64 – col. 3, line 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the upstream charging of particles as taught by Carr because the charge enhances the particles adherence to the collector (col. 1, lines 22-31).

### ***Response to Arguments***

Applicant's arguments filed 6/21/07 have been fully considered but they are not persuasive.

Applicant has argued that Stevens '751 does not teach the rows of microimpactors being in the same plane as the sheet because the microimpactors of Stevens are free to move. Stevens teaches the microimpactors are in the same plane as the sheet as illustrated in fig. 18. The microimpactors are able to move when acted on by the flow of fluid through the system (col. 5, lines 54-71).

### ***Conclusion***

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4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin Kurtz whose telephone number is 571-272-8211. The examiner can normally be reached on Monday through Friday 8:00am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Benjamin Kurtz  
Patent Examiner 1723  
8/3/07



**KRISHNAN MENON**  
**PRIMARY EXAMINER**